

Contribution of cluster relations to food network competitiveness

Extended abstract

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The participation in regional networking relations is an important factor in explaining food firms' innovation capacity (Gellynck *et al.*, 2006a; Gellynck *et al.*, 2006b). Further, in cluster theory it is argued that intensive interaction between related firms and other actors in a given region is a driver of competitive advantage of this region (Enright, 1998; Porter, 1998). Each cluster, hereby understood as an set of geographically and socially embedded set of networks in a region, shows distinct patterns of learning and uses different sources of knowledge (Pittaway *et al.*, 2004; Steiner&Hartmann, 2006). In this paper the question is put forward whether different relations within the regional food network have a different relation with the competitiveness of the regional food network.

The research framework describes the regional food network as a bundle of relations between the food industry and four main stakeholders in the regional food cluster: suppliers, customers (market), knowledge centres and regional policy makers. Networking between the stakeholders is understood as the combination of internal and external resources by the focal company, with the aim of increasing competitiveness and innovation in food companies (Camps, 2004; Pittaway *et al.*, 2004). In the research framework, the network perspective is combined with theory about the benefits of clustering. The positive impact of the cluster lies in its potential to create a pool of knowledge and streams of knowledge between the actors, resulting in an increasing innovation competence of the companies and of the region and increased competitive advantage on the global stage (Asheim&Coenen, 2005; Enright, 1998; Lagnevik *et al.*, 2004; Porter, 1998). However, this benefit can not be presupposed and a number of problems are described which are attached to the notion of competitiveness as it is used in cluster theory. In this paper, the focus is on two key benefits described in cluster theory: food networks are considered competitive when having a positive effect on the international competitiveness of the regional food sector and on new business development. This paper distinguishes four types of cluster relations: the relations of the food companies with supplier- and customer relations, with knowledge centres (industry-science links, ISL) and with regional policy makers on different policy levels.

The research question is as follows. As networking is understood as the combination of the firm's internal resources with relevant external resources, the question rises which networking relations are perceived to be most important to explain differences in competitiveness between regional food networks and hence innovation. This is done by exploring differences in the relation of

regional networking with regional policy support, industry-science links, suppliers and the regional market.

The research design consists of a survey of the perception of regional food stakeholders of network relations in the EU, conducted in May-June 2006. The research area comprises 7 regions participating in the Food Innovation Network Europe¹. These regions are Øresund (SE+DK), East-Netherlands (NL), Rogaland (N), East- and West-Flanders (B), Scotland (UK), Emilia-Romagna (IT) and Wielkopolska (P). Data collection takes place through a structured questionnaire among 76 food stakeholders in 7 EU regions measuring the perception of cluster relations and their effect on competitiveness. The closed questionnaire measures the degree of agreement with a number of statements about the relation between the food industry and the other stakeholders in the cluster, respectively the food supply chain, knowledge centres, regional policy and food networks. The final question provides statements about the effect of these relations on the international competitiveness of food firms and on business development, understood as the number of start-ups and new settlements. The analysis starts by hierarchical cluster analysis using three competitiveness indicators (the number of start-ups and new settlements and international competitiveness). This results in a two-cluster solution distinguishing high competitive and low competitive regions. Next, the set of variables is restructured into five factors using factor- and reliability analysis illustrating the network relations. A number of five factors is fixed (by Scree plot and looking at the eigenvalues) which results in a satisfactory level of variance explained (70%). The factors are labelled: 'policy focus on the food industry', 'links with suppliers', 'industry-science links', 'education', 'regional market'

In the final step of the analysis the intensity of the relationship between regional factors (independent variables) and a company's cluster membership (dependent variable) is determined. The function has the ability to predict the group membership of 71% of the cases (not presented in the table), indicating a limited capacity of the discriminant function in explaining the network competitiveness. As such, it is concluded that additional cluster relations are required to provide a full explanation of network competitiveness.

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However, the discriminant function indicates three factors having a strong potential to predict the respondent's membership of a low competitive or high competitive network. In the discriminant function the strongest explanatory power is demonstrated by the policy support to the regional food industry. Respondents associate high competitive networks with a particular policy focus on the food industry as a whole, and on specialised sectors in particular. This stresses the importance of specificity in regional policy. In particular when it concerns the reinforcement of regional networks – being a socially embedded and contextualised phenomenon – this is considered important. This is in line with the EU-industrial policy. Despite of its explicit horizontal character, the commission also acknowledges that it not be restricted to horizontal measures alone (Beckeman&Skjöldebrand, 2005). Of second importance are the industry-science links. This factor refers to the quality of knowledge transfer, whereby both the food industry and scientists take an active role.

Of third importance are the supplier links, which is remarkable, considering the relations within the food supply chain. Stakeholders perceive suppliers- and customers relations differently. Suppliers relations are positively related to performance while there are no significant differences between the cluster's perception of customer relations.

A final remark concerns the importance of discovering additional network relations, observing the limited variance explained by the discriminant function. One relation to be explored is between food companies and policy makers. This relation concerning policy support towards the food firms, whereby the opposite direction in the relation, the communication of food firms with policy makers and administrations, or their participation in policy is not taken into consideration. Observing the important perceived role of policy support the latter should be included as independent variable.

Literature

- Asheim, B. T., & Coenen, L. (2005). Knowledge bases and regional innovation systems: Comparing Nordic clusters. *Research Policy*, 34, 1173-1190.
- Beckeman, M., & Skjöldebrand, C. (2005). Clusters/networks promote food innovations. *Journal of Food Engineering*, *Accepted for publication*,
- Camps, T. (2004). Chains and networks: theory and practice. . In T. Camps, P. Diederer, G. J. Hofstede, & B. Vos (Eds.), *The emerging world of chains & networks. Bridging theory and practice*. 's Gravenhage: Reed Business Information.
- Enright, J. (1998). The globalization of competition and the localization of competitive advantage: policies towards regional clustering. In *Proceedings Workshop on the globalization of multinational enterprise activity and economic development* (Strathclyde, Scotland).
- Gellynck, X., Vermeire, B., & Viaene, J. (2006a). Innovation and networks in the food sector: impact of regional factors, *International European Seminar on Trust and Risk in Business Networks*. Bonn, Germany.
- Gellynck, X., Vermeire, B., & Viaene, J. (2006b). Innovation in food firms: contribution of regional networks within the international business context. *Entrepreneurship & Regional Development (accepted for publication)*,
- Lagnevik, M., Sjöholm, I., Lareke, A., & Östberg, J. (2004). *The dynamics of innovation clusters. A study of the food industry*. Northampton: Edward Elgar.
- Pittaway, L., Robertson, M., Munir, K., Denyer, D., & Neely, A. (2004). Networking and innovation: a systematic review of the evidence. *International Journal of Management Reviews*, 5-6, 137-168.
- Porter, M. (1998). *On the competitive advantage of nations*. London: Macmillan.
- Steiner, M., & Hartmann, C. (2006). Organizational learning in clusters: A case study on material and immaterial dimensions of cooperation. *Regional Studies*, 40, 493-506.